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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,998	10/02/2003	Salih Burak Gokturk	CANE.P0044	8923

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Canesta, INC
Michael A Kaufman ESQ
440 North Wolfe Road
Suite 101
Sunnyvale, CA 94085

EXAMINER	
LEE, PATRICK J	
ART UNIT	**PAPER NUMBER**
2878	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/03/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	**Application No.** 10/678,998	**Applicant(s)** GOKTURK ET AL.
	Examiner Patrick J. Lee	**Art Unit** 2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 November 2006*.
2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-20* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a)☐ All b)☐ Some * c)☐ None of:
1.☐ Certified copies of the priority documents have been received.
2.☐ Certified copies of the priority documents have been received in Application No. _____.
3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date *07212006*.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This action is in response to amendment filed November 7, 2006.

Claim Objections

2. Claims 10, 17-18, and 20 are objected to because of the following informalities:

Claim 10 requires a “second image”, but a “first image” is never claimed in claim 1. For examination purposes, it will be assumed that the “first image” is the same as a “single image”. However, the use of a “second” image as well as a “reference training image” would be contradictory to claim 1’s use of only a single image in the recognition process.

With respect to claims 17-18 & 20, the use of “different images” does not have the antecedent basis if claim 14 was amended to erase “different images”.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 14-15 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,085,516 to Bertrand et al.

With respect to claim 14, Bertrand et al disclose a system comprising: camera (7) as a sensor for acquiring an image of the space; laser (3) as a means for defining a reference a plane using a fan light beam (4); and an inherent processing element as a means for determining the shape of the edges of objects (1-2) by determining the distances Δx, Δy, and Δz.

With respect to claim 15, the laser (3) defines a physical surface of objects (1, 2) with light beam (4).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-13 & 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,085,516 to Bertrand et al.

Bertrand et al discloses the device as described in the discussion of claims 14-15.

With respect to claim 1, Bertrand et al discloses a device for determining the shape of edges by: providing a laser (4) as an optical energy source to generate a fan beam (4); defining a reference plane in space that corresponds to the fan beam (4); disposing a camera (7) as a sensor at a predetermined angle from the plane of a fan beam (see column 5, lines 27-28); and recognizing from a single image of camera (7) the trace (6) of object (2). The angle of disposition of the camera (7) through the use of positioners (10) along a circle (11) (see figure 1), which allows for an a priori positional relationship between the optical energy source and the sensor without knowledge of the position of objects (1, 2). While the teachings of Bertrand et al do not explicitly disclose the determination of the size and relative location of the intersection, such would have been obvious to one of ordinary skill in the art because such would increase the effectiveness of the application of the device to the testing of window panels of the automotive industry as the device could be used to monitor for inconsistencies in thickness of panels and for potential chipping on the surface.

With respect to claim 2, the modified Bertrand et al does not explicitly state that the laser outputs visible or invisible light, but such would have been obvious to one of ordinary skill in the art because use of such light would allow for the use of cameras to adequately image the objects (1, 2).

With respect to claim 3, the modified Bertrand et al does disclose the use of a laser (3), but does not explicitly state that it is a rotating source. To modify the teachings of Bertrand et al accordingly would have been obvious to one of ordinary skill in the art because such would increase the range over which the device could make the appropriate measurements.

With respect to claim 4, the modified Bertrand et al does not explicitly disclose the use of a scanning light beam, but such would have been obvious to one of ordinary skill in the art because such would allow for the use of the device over much more of the objects (1-2).

With respect to claim 5, the modified Bertrand et al disclose the use of a laser (3).

With respect to claim 6, the modified Bertrand et al disclose the reference plane being defined by a laser (3).

With respect to claim 7, the modified Bertrand et al does not disclose the reference plane as such, but such would have constituted intended use of the device.

With respect to claim 8, the modified Bertrand et al does not explicitly disclose the use of a digital camera, but such would have been obvious to one of ordinary skill in the art because such would allow for ease in processing of images after they have been taken.

With respect to claim 9, the modified Bertrand et al does not explicitly state that the vertical distance between the sensor and reference plane is determined as such, but such would have been obvious to one of ordinary skill in the art because such calibration would allow for establishing the operating parameters of the device.

With respect to claim 10, the use of a reference training image and second image is not explicitly disclosed, but such would have been obvious to one of ordinary skill in the art because such would have allowed the device more accuracy in determining the shape of the object.

With respect to claim 11, Bertrand et al discloses a device to perform the method of: disposing a laser (3) as a source of optical energy to emit optical energy towards a potential location with at least one object (1-2); disposing a single sensor camera (7) with a field of view substantially coinciding with the region of interest, where the camera is disposed in a known position; and determining the shape of the edge of object (1-2). However, Bertrand et al does not explicitly disclose the use of a three dimensional camera and to determine the volume of the object. However, the camera disclosed does function in three dimensions, as it is possible to determine the distances in the x, y, and z coordinates. To determine the volume would have been obvious to one of ordinary skill in the art because such would allow for such would have been obvious to one of ordinary skill in the art because such would increase the effectiveness of the application of the device to the testing of window panels of the automotive industry as the device could be used to monitor for inconsistencies in thickness of panels and for potential chipping on the surface.

With respect to claim 12, the use of a stereo-vision camera is not explicitly disclosed, but such would have been obvious to one of ordinary skill in the art because such would allow the system proposed by Bertrand et al to obtain an accurate three-dimensional image of the object (1-2).

With respect to claim 13, Bertrand et al disclose a system comprising: laser (3) as an optical energy source to generate fan light beam (4) that defines an optical reference plane; camera (7) disposed at a known vertical position to reference plane; and an inherent processing system to determine the distances between objects (1, 2). However, the device disclosed by Bertrand et al does not explicitly disclose the determination of the occupancy in space, but does disclose the shape of the edges. Such would have been obvious to one of ordinary skill in the art because such would comprise the analog of determining the shape of the device.

With respect to claim 16, the use of a digital camera and a three-dimensional range sensor is not explicitly disclosed, but such would have been obvious to one of ordinary skill in the art because such would allow for ease of processing the images.

With respect to claims 17-18 & 20, the use of different images to calculate a full-ness factor is not explicitly disclosed, but such would have been obvious to one of ordinary skill in the art because such would be a mere minor calculation as the area of the plane is already known based on the a priori relationship between the camera (7) and source (3).

With respect to claim 19, the modified Bertrand et al discloses the device in a robotic application for inspection of window panels, but does not disclose its mobility. However, such would have been obvious to one of ordinary skill in the art because such would increase the effectiveness of the device in being able to monitor much more of the panels.

Response to Arguments

7. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 4,479,053 to Johnston discloses an optical proximity sensor using a fan beam source and a detector set at a specific position from the source.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick J. Lee whose telephone number is (571) 272-2440. The examiner can normally be reached on Monday through Friday, 8:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on (571) 272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Patrick J. Lee
Examiner
Art Unit 2878

PJL
December 17, 2006

Stephone B. Allen
Primary Examiner